
GREENUP COUNTY

(Greenup County Water Service Area Map)

- Estimated 1999 population of 36,800--85% on public water
- Estimated 2020 population of 35,500--90% on public water
- 345 miles of water lines, with plans for 140 additional miles
- Estimated funding needs for public water 2000-2005: \$16,000,000
- Estimated funding needs for public water 2006-2020: \$11,292,000

Greenup County had an estimated population of 36,816 (14,364 households) in 1999 with a projected population of 35,500 (15,200 households) in 2020. Public water is provided to about 85 percent of the county's residents. In areas of the county not served by public water, households rely on private domestic wells. About 700 households will be added to public water service through new line extensions in 2000-2020.

Estimated Costs - Proposed Projects, 2000-2005

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	In \$1000	in \$1000	in \$1000	in \$1000	in \$1000
GREENUP								-
Flatwood W/D								-
Raceland	9	72	400	500			300	1,200
Russell				2,000		8,000	500	10,500
South Shore (private)					2,000			2,000
Worthington								-
Wurtland					2,000		300	2,300
Total	9	72	400	2,500	4,000	8,000	1,100	16,000

Estimated Costs - Proposed Projects, 2006-2020

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
GREENUP								-
Flatwood W/D	2	20	100				300	400
Greenup W/D	118	265	4,750			4,000	1,500	10,250
Raceland								-
Russell								-
South Shore (private)	11	340	342					-
Worthington				300				300
Total	131	625	5,192	300		4,000	1,800	11,292

WATER SERVICE AREAS

GREENUP COUNTY

Kentucky

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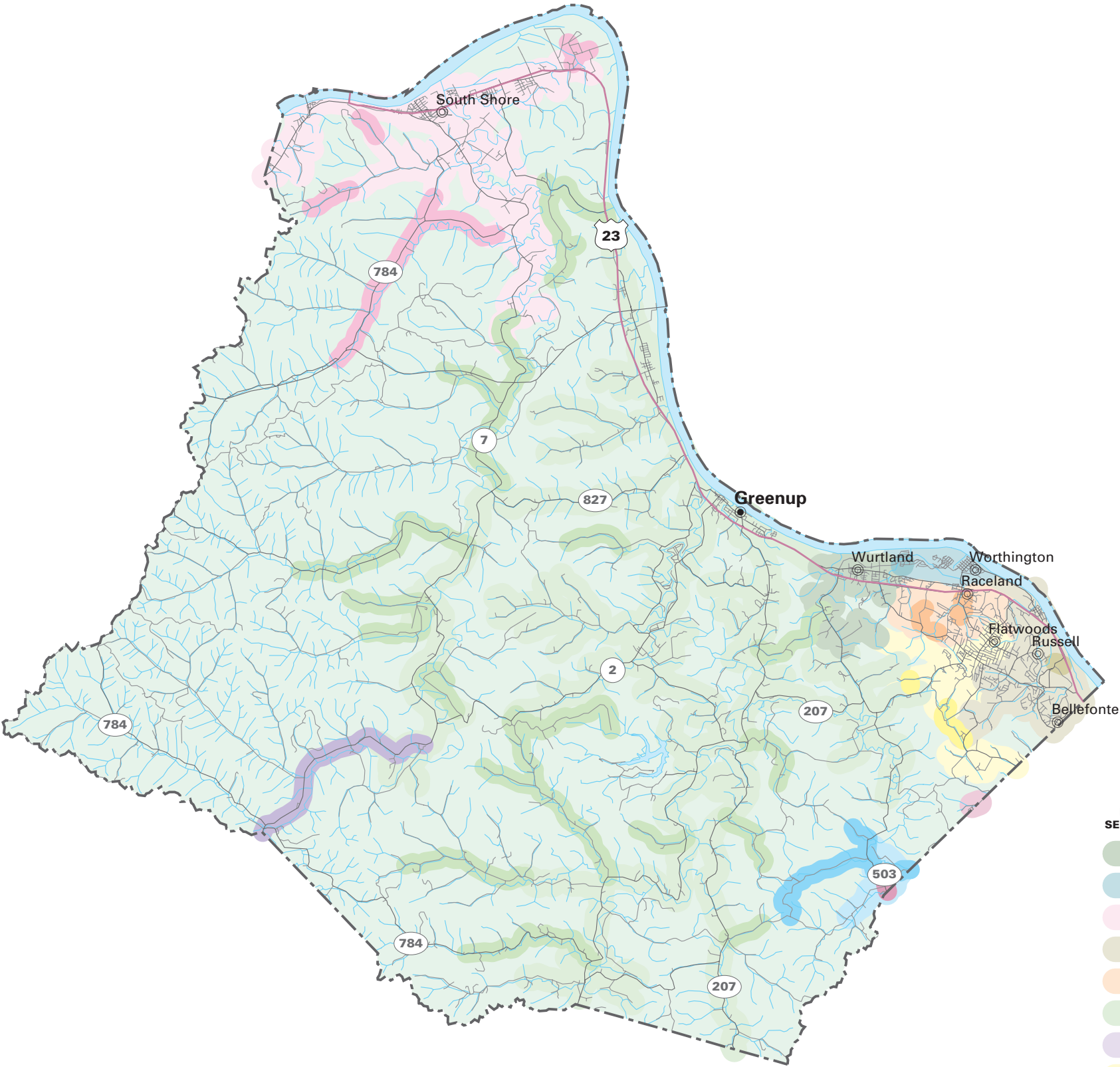
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WATER SERVICE STATUS BY OWNER		
EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		WURLAND WATER DEPARTMENT
		WORTHINGTON MUNICIPAL WATER WORKS
		SOUTH SHORE WATER WORKS INCORPORATED
		RUSSELL WATER COMPANY
		RACELAND WATER SYSTEM
		GREENUP WATER PLANT
		GRAYSON UTILITY COMMISSION
		FLATWOODS WATER COMPANY
		CANNONSBURG WATER DISTRICT
		ASHLAND WATER WORKS

PUBLIC WATER SYSTEMS

Greenup County is served by 8 public water systems: 6 municipal, City of Greenup, City of Flatwoods, City of Raceland, City of Russell, City of Worthington, and City of Wurtland; 1 private, South Shore Water Works, Inc.; and one non-community system.

FLATWOODS WATER COMPANY

PWSID: 0450132
System Type: COMMUNITY
Owner Type: MUNICIPAL
Surface Source:
Purchase Source: KY-1458
Well Source:
Sells Water to: RACELAND WATER SYSTEM
Treatment Plant Capacity (MGD): 0.00
Percent Daily Average Production: 0.00
Total Tank Storage Capacity (gallons): 750,000.00
Total Service Connections: 3,113.00
Number of Employees: 10.00
Treatment Operator Class: 2D
Distribution Operator Class:
Customer Rate for 1,000 Gallons: Not available
O/M costs 1997: Not available
O/M costs per Service Connection: Not available
Net Revenue 1997: Not available
Total Water Produced 1997 (gallons): Not available
Water Sold 1997 (gallons): Not available
Unaccounted-for Water 1997 (%): Not available

The City of Flatwoods, Kentucky operates the city's water distribution plant. They purchase water from the Russell Water Works, Russell, Kentucky and Ashland Water Works, Ashland, Kentucky. Flatwoods purchases treated water under contracts. Flatwoods operates two tanks with capacities of 250,000 (ground storage) and 500,000 (standpipe) gallons.

The total number of service connections is 3,113. 2,946 were residential and the remaining 167 were classified as commercial. The City Flatwoods maintains their own lines and is responsible for billing the water customers. Flatwoods Water has one water distribution system operator who holds at Classification II-D.

GREENUP WATER PLANT

PWSID: 0450169
System Type: COMMUNITY
Owner Type: MUNICIPAL
Surface Source: LITTLE SANDY
Purchase Source:

Well Source:	
Sells Water to:	WURLAND WATER DEPARTMENT
Treatment Plant Capacity (MGD):	1.00
Percent Daily Average Production:	75.00
Total Tank Storage Capacity (gallons):	975,000.00
Total Service Connections:	3,000.00
Number of Employees:	11.00
Treatment Operator Class:	2D
Distribution Operator Class:	3A
Customer Rate for 1,000 Gallons:	Not available
O/M costs 1997:	Not available
O/M costs per Service Connection:	Not available
Net Revenue 1997:	Not available
Total Water Produced 1997 (gallons):	Not available
Water Sold 1997 (gallons):	Not available
Unaccounted-for Water 1997 (%):	Not available

The City of Greenup services the city, much of the county, and the City of Wurland.

Greenup City gets its water from the Little Sandy River while using the Ohio River only as an emergency source. Daily production averages around 750,000 gallons per day with the last twelve months highest daily withdrawal being 922,000 gallons. Production capacity is 1,000,000 gallons per day. The system has storage capacity of 975,000 gallons. Also, of the eleven-fulltime employees, four are certified water treatment operators.

The Greenup Water Plant provides water to a population of 9,000 through 3,000 connections: 2,525 residential households, 375 commercial, and 3 industrial customers. Most of the city has water lines; however, in the service area of the county there remain several areas which do not have access to water lines. These households fill their water needs by wells or hauled water.

Future extensions of the system will include the completion of the joint City of Greenup and Greenup County "Phase VI" project, which will add 31 miles to the existing 235 miles of water lines. The Phase VI will increase by around 285 the number of residential households in the system. In the next two to five years 250 households will also be added to the system. All of this comes after the just completed "Phase V" project which involved the improvement of the water treatment plant to a production capacity of two million gallons per day. In addition, the next few years will likely see planning for the expected growth from the industrial parkway project.

RACELAND WATER SYSTEM

PWSID: 0450365
System Type: COMMUNITY
Owner Type: MUNICIPAL
Surface Source:
Purchase Source: RUSSELL
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD): 0.00
Percent Daily Average Production: 0.00
Total Tank Storage Capacity (gallons): 100,000.00
Total Service Connections: 1,250.00
Number of Employees: 5.00
Treatment Operator Class: 2D
Distribution Operator Class:
Customer Rate for 1,000 Gallons: Not available
O/M costs 1997: Not available
O/M costs per Service Connection: Not available
Net Revenue 1997: Not available
Total Water Produced 1997 (gallons): Not available
Water Sold 1997 (gallons): Not available
Unaccounted-for Water 1997 (%): Not available

The City of Raceland, Kentucky owns Raceland Water Works. They purchase treated water from the City of Russell (Russell Water Works) and from the City of Flatwoods (City of Flatwoods Water). Total number of service connections for Raceland Water works is 1,250: 1,154 residential, 48 commercial, 34 industrial, and 14 institutional. The total population served is 2,441. The City of Raceland maintains the lines and bills the customers.

Raceland's main water sources are Russell Water Works, whose water source is the Ohio River, and the City of Ashland (during adverse seasonal conditions). Flatwood and Russell's individual available capacity source to Raceland Water Works is 107,750 gallons per day. The system has storage capacity of 100,000 gallons.

Raceland does not operate a water treatment plant but does have one elevated tank located at Caldwell. Raceland Water Works is totally dependent on the two sources mentioned above. If there is a line break it affects Raceland's residents too. If the water is turned off (which is fairly common) they may not know about it until after it happens. Raceland Water Works has two water distribution system operators. The Water Distribution System Operators both have II-D classifications, meeting the required classification.

Raceland Water Works must provide service to all the residents within the city limits of Raceland. A few known projects have been identified for the 0-5 year time frame. Too many dead end lines have been noted. All future construction and repairs will attempt to loop the lines for continuous flow and better pressure. However, requirements for 2005-2020 are difficult to predict. At this time all known dwellings within the city of Raceland are being served.

RUSSELL WATER COMPANY

PWSID: 0450376
System Type: COMMUNITY
Owner Type: MUNICIPAL
Surface Source: OHIO RIVER
Purchase Source: CITY OF ASHLAND
Well Source:
Sells Water to: RACELAND WATER SYSTEM
Treatment Plant Capacity (MGD): 2.00
Percent Daily Average Production: 100.00
Total Tank Storage Capacity (gallons): 100,000.00
Total Service Connections: 2,500.00
Number of Employees: 5.00
Treatment Operator Class: 2D
Distribution Operator Class: 3A
Customer Rate for 1,000 Gallons: Not available
O/M costs 1997: Not available
O/M costs per Service Connection: Not available
Net Revenue 1997: Not available
Total Water Produced 1997 (gallons): Not available
Water Sold 1997 (gallons): Not available
Unaccounted-for Water 1997 (%): Not available

The City of Russell, Kentucky owns Russell Water Works. Their source of water is the Ohio River. The system has treatment capacity of 2,000,000 gallons per day and storage capacity of 1,900,000 gallons. They also purchase water from the city of Ashland, Kentucky on a seasonal basis. The total number of service connections is 2,500. Russell Water Works services the cities of Russell and Bellefonte. The City of Bellefonte is actually located in Boyd County. The city of Russell bills and maintains the lines in the city of Bellefonte. Additionally, Russell Water Works sells water to the city's of Flatwoods and Raceland.

The water treatment plant's 24 hour rated capacity is 2 million gallons a day. At this time the plant is operating at 100% capacity. Russell Water Works storage system consists of four

elevated tanks located throughout the city. Russell's current water storage capacity is 1.9 million gallons.

Russell Water Works has five (5) employees. All five employees are classified as Water Treatment Plant Operators, while only four are classified as Water Distribution Systems Operators. Requirement for the Water Treatment Plant Operator is III-A and all but one operator meet or exceeds this requirement (2 at III-A, 2 at IV & 1 at II). Water Distribution Systems Operators for Russell Water Works requires a classification II. All Distribution Operators either meet or exceed this requirement (2 at II & 2 at III).

With the anticipated increase in population/growth in there will be needed to update and expand the existing facilities. The Russell population change for 1990 to 1996 as indicated by the United States Census Bureau and Kentucky Population Research Estimates increased 11.5%. Continued growth for this area and for Greenup County is expected. Larger tanks and an upgraded plant will be needed for the future. The cost has not yet been determined.

All known dwellings are being served within the city limits of Russell, Flatwoods and Raceland.

SOUTH SHORE WATER WORKS INCORPORATED

PWSID:..... 0450410
System Type:..... COMMUNITY
Owner Type:..... PRIVATE
Surface Source:
Purchase Source:
Well Source: Yes
Sells Water to:
Treatment Plant Capacity (MGD):..... 1.00
Percent Daily Average Production:..... 47.00
Total Tank Storage Capacity (gallons): 248,000.00
Total Service Connections: 2,250.00
Number of Employees:..... 8.00
Treatment Operator Class: 2D
Distribution Operator Class:..... 3B
Customer Rate for 1,000 Gallons:..... 3.19
O/M costs 1997: 369,149.00
O/M costs per Service Connection: 167.11
Net Revenue 1997: 36,568.00
Total Water Produced 1997 (gallons):..... 160,554,000.00
Water Sold 1997 (gallons): 128,073,000.00
Unaccounted-for Water 1997 (%): 14.89

South Shore Water, Inc. is Greenup County's only privately owned and managed water system. South Shore gets its water from eleven seasonal wells and from them produces on average 453,000 gallons a day. The permitted withdrawal from the well field is 1,000,000 gallons per day with the water treatment capacity being 1,000,000 gallons per day. The system has storage capacity of 248,000 gallons. Of the eight-fulltime employees, three are certified water treatment operators.

South Shore customers are located primarily in the South Shore area: 2,000 in Greenup County and 250 in neighboring Lewis County, Kentucky. In all, South Shore provides service to a population of 7,500. Of the 2,250 connections 2,106 are residential, 120 commercial, 4 industrial, and 20 classed as "other." In South Shore's service area there remain some areas that do not have access to waterlines. These 150 households fill their water needs by wells or hauled water.

In the future, South Shore Water Works expects a water deficit to occur. For this reason South Shore will be connecting into the City of Greenup's "Phase VI" water system improvements. This will bring the district's total available capacity to 2,000,000 gallons per day, which will be carried by two planned 6-inch connections. The will be complete within the next five years. South Shore's improvements, moreover, during the last two years have included a new pumping station, new treatment equipment, the replacement of aged steel lines, new water main extensions, new meters, new tanks, etc.

WORTHINGTON MUNICIPAL WATER WORKS

PWSID: 0450478
System Type: COMMUNITY
Owner Type: MUNICIPAL
Surface Source:
Purchase Source:
Well Source: Yes
Sells Water to:
Treatment Plant Capacity (MGD): 0.25
Percent Daily Average Production: 55.00
Total Tank Storage Capacity (gallons): 200,000.00
Total Service Connections: 690.00
Number of Employees: 5.00
Treatment Operator Class:
Distribution Operator Class: 2BD
Customer Rate for 1,000 Gallons: Not available
O/M costs 1997: Not available

O/M costs per Service Connection:	Not available
Net Revenue 1997:	Not available
Total Water Produced 1997 (gallons):	Not available
Water Sold 1997 (gallons):	Not available
Unaccounted-for Water 1997 (%):	Not available

Located in Greenup County, the Worthington Municipal Water provides water service to the town of Worthington. The source of the water is three wells: one producing an average of 93,000 gallons per day and two producing an average of 144,00 gallons per day. The permitted daily withdrawal from these wells is 250,000 gallons per day. Within the last twelve months the highest average gallons per day withdrawn was 204,000 from one well and 194,000 from each of the other two wells. There is one storage tank has a capacity of 200,000 gallons. Of the five-fulltime district employees, four are certified water treatment operators.

Worthington provides water service to a population of 1,751. There are 690 service connections: 677 households, 8 commercial, and 5 institutional.

Planned extensions to the Worthington system include an extension within the next five years and one in the next six to twenty years. The immediate project will connect Newman Drive to McCloud Drive, thereby, extending .25 miles. The more distant project will involve nine lots within Zane Court and Franz Drive and will extend .33 miles.

Furthermore, growth related to the industrial parkway may call for the extension of lines into an area west of the city. Despite these future extensions, future growth of the Worthington water district will be quite limited given the physical location of the town. To the north of the town is an airport and the Ohio River, to the south is the large CSX rail facility, to the east is a floodplain, and to the west very little land within the city limits.

WURLAND WATER DEPARTMENT

PWSID:	0450479
System Type:	COMMUNITY
Owner Type:	WATER DISTRICT
Surface Source:	
Purchase Source:	CITY OF GREENUP
Well Source:	
Sells Water to:	
Treatment Plant Capacity (MGD):	0.00
Percent Daily Average Production:	0.00
Total Tank Storage Capacity (gallons):	150,000.00

Total Service Connections:	575.00
Number of Employees:.....	2.00
Treatment Operator Class:	2D
Distribution Operator Class:.....	2A
Customer Rate for 1,000 Gallons:.....	Not available
O/M costs 1997:.....	Not available
O/M costs per Service Connection:	Not available
Net Revenue 1997:	Not available
Total Water Produced 1997 (gallons):.....	Not available
Water Sold 1997 (gallons):.....	Not available
Unaccounted-for Water 1997 (%):	Not available

The City of Wurtland, Kentucky owns Wurtland Water Works. Wurtland Water Works purchases treated water from the City of Flatwoods, Kentucky and from the City of Greenup, Kentucky. All known dwellings are presently being serviced if they fall within Wurtland's city limits. The total number of service connections is 575: 555 residential, 17 commercial, and 3 industrial. The total population served was 1,225. The City of Wurtland is responsible for the water consumption billing.

There is no water treatment plant or water treatment plant operators. The Water Distribution System requires an II-D Classification. There are two (2) Water Distribution system operators, one with an II-D classification and the other with III-D classification.

Over the next several years the City of Wurtland expects that Greenup will no longer be able to supply them the needed water. If this is the case, Wurtland will have to look for other sources. At present, Flatwoods limits the amount of water to be purchased meaning that there would not be enough to serve those connected with the lines served from Greenup Water. The other alternative would be to establish their own Water Treatment Plant and Distribution Center. This will probably be a viable solution some time down the road.

OTHER SYSTEMS

GREENBO LAKE STATE RESORT PARK

Greenbo Lake State Resort Park is located in Greenup County. The system serves a population of 200 and has 10 service connections. The state, non-transient, non-community system has treatment capacity of 156,528 gallons per day. The water source is Greenbo Lake.

PRIVATE DOMESTIC SYSTEMS

About 5,500 people in Greenup County rely on private domestic wells for their water supply.

Most wells in valley bottoms in the eastern half of the county are adequate for domestic supply. In the western half of the county groundwater becomes more scarce with less than half of the wells drilled in valley bottoms able produce sufficient quantities of water for a domestic supply. Throughout the county, wells on hillsides and ridges become progressively less productive as they move away from the valley bottoms. Quite a few high volume wells (>50gpm) are found along the Ohio River alluvium in northern Greenup County.

Most of the water from drilled wells is very to extremely hard and contains noticeable amounts of iron. Salty water is commonly found in wells drilled less than 100 feet below the level of the principal valley bottoms.

A few springs supply sufficient quantities of water for domestic use. Almost all springs yield less than 5 gpm.
